

L Numb r	Hits	Search T xt	DB	Tim stamp
1	51	vinyl thylen adj carbonate	USPAT; US-P. PUB; EP ; JP ; DERWENT	2004/01/06 12:23
2	18	(vinylethylene adj carbonate) and electrolyte	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/01/06 12:56

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Print selected from Online session Page 1 01/06/2004

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(FILE 'HOME' ENTERED AT 12:37:57 ON 06 JAN 2004)

FILE 'REGISTRY' ENTERED AT 12:38:07 ON 06 JAN 2004

E VINYLETHYLENE CARBONATE/CN

L1 1 S E3

FILE 'CAPLUS' ENTERED AT 12:39:13 ON 06 JAN 2004

L2 78 S L1

L3 43 S L2 AND (LITHIUM OR LI)

L4 41 S L3 AND ELECTROLYTE#

L5 36 S L4 AND (ETHYLENE (A) CARBONATE#)

L6 24 S L5 AND BUTYROLACTONE

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YOU HAVE REQUESTED DATA FROM 24 ANSWERS - CONTINUE? Y/(N):y

L6 ANSWER 1 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:930046 CAPLUS

DOCUMENT NUMBER: 139:398032

TITLE: Nonaqueous **electrolyte** secondary batteries
and electric apparatus equipped with such batteries

INVENTOR(S): Kita, Akinori; Kojima, Hideaki; Segawa, Takeshi;
Yamaguchi, Akira

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003338277	A2	(20031128)	JP 2002-144834	20020520
PRIORITY APPLN. INFO.:			JP 2002-144834	20020520

AB The cathode of the battery comprises a mixed oxide contg. Li and transition metal and is equipped with a thin layer of conductive carbonaceous material and a binder. Also claimed is a battery with a cathode having a thin layer characterized by max. peak intensity at 530-535 eV, in the 1st inner shell quasi-spectra detd. by XPS under photon emission angle of .ltoreq.35.degree., being larger than that for 1st inner shell quasi-spectra of O in 528-530 eV. Preferable compds. for use as solvents are also given. Also claimed are nonaq. secondary batteries prepd. under application of pulsed voltage after assembly and elec. app. equipped with such batteries. The batteries show prevented short circuit and smoke generation.

IT Fluoropolymers. uses

- RL: DEV (Device component use); USES (Uses)
(binder for conductive coating on cathodes; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT Films
(elec. conductive, cathode surface coated with; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT Electric conductors
(films, cathode surface coated with; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(**lithium**-contg., cathodes; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT Battery cathodes
Secondary batteries
(nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT 24937-79-9, Poly(vinylidene fluoride)
RL: DEV (Device component use); USES (Uses)
(binder for conductive coating on cathodes; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT 12057-17-9, **Lithium** manganese oxide (LiMn_2O_4) 12190-79-3, Cobalt **lithium** oxide (CoLiO_2) 15365-14-7, Iron **lithium** phosphate (FeLiPO_4)
RL: DEV (Device component use); USES (Uses)
(cathode active materials; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT 7782-44-7, Oxygen, uses
RL: DEV (Device component use); USES (Uses)
(conductive carbonaceous coatings contg.; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(conductive coating on cathodes; nonaq. **electrolyte** secondary batteries with **lithium** transition metal oxide cathodes having thin carbonaceous coatings)
- IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte** secondary batteries with **lithium**

- transition metal oxide cathodes having thin carbonaceous coatings)
- IT 79-20-9, Methyl acetate 96-48-0, .gamma.-**Butyrolactone**
 96-49-1, **Ethylene carbonate** 102-09-0, Diphenyl
 carbonate 105-54-4, Ethyl butyrate 105-58-8, Diethyl carbonate
 108-29-2, .gamma.-Valerolactone 108-32-7, Propylene carbonate
 109-60-4, n-Propyl acetate 123-86-4, Butyl acetate 140-11-4, Benzyl
 acetate 141-78-6, Acetic ether, uses 517-23-7, .alpha.-Acetyl-.gamma.-
butyrolactone 540-42-1, Isobutyl propionate 554-12-1, Methyl
 propionate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl
 carbonate 872-36-6, Vinylene carbonate 1609-47-8, Diethyl dicarbonate
 1679-47-6, .alpha.-Methyl-.gamma.-**butyrolactone** 2171-74-6,
 1,3-Benzodioxol-2-one 3967-54-2, Chloroethylene carbonate 4427-92-3,
 Phenylethylene carbonate **4427-96-7**, Vinyl **ethylene**
carbonate 16761-08-3 21240-34-6 122036-85-5 324547-56-0
 625365-63-1
 RL: DEV (Device component use); USES (Uses)
 (nonaq. **electrolyte** solvent; nonaq. **electrolyte**
 secondary batteries with **lithium** transition metal oxide
 cathodes having thin carbonaceous coatings)
- IT 21324-40-3, **Lithium** hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (nonaq. **electrolyte**; nonaq. **electrolyte** secondary
 batteries with **lithium** transition metal oxide cathodes having
 thin carbonaceous coatings)

L6 ANSWER 2 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:853394 CAPLUS
 DOCUMENT NUMBER: 139:326113
 TITLE: Powdery graphite-type anode material, anode, and
 secondary **lithium** battery
 INVENTOR(S): Fuse, Akira; Sato, Shuji; Nishioka, Keiko; Ishihara,
 Masashi
 PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003308838	A2	20031031	JP 2002-113045	20020416
PRIORITY APPLN. INFO.:			JP 2002-113045	20020416

AB The claimed anode material comprises 50-99.5 parts graphite-type
 carbonaceous materials (G1) and 0.5-50 parts carbonaceous materials (G2)
 having lower crystallinity than G1 as total 100 parts, where the material
 is characterized by (1) x-ray diffractometry (XRD) peak intensities of
 (101) surface of rhombohedral graphite layer (AB stacking layer) and
 (101) surface of hexagonal graphite layer (AB stacking layer)

ABC(101)/AB(101) .gtoreq.0.01. (2) interplanar spacings (d002) of G1 <3.37 .ANG. and (d002) of G2 .gtoreq.3.37 .ANG., and (3) initial charging-discharging efficiency at 0-1.5 V cutoff potential using a Li counter electrode .gtoreq.70%. The claimed anode is obtained from a mixt. contg. the above material and a binder. The claimed battery is equipped with an **electrolyte** soln. contg. 10-99.5 wt.% propylene carbonate or .gamma.-**butyrolactone** and 0.1-10 wt.% film-forming agent, a cathode, and the above anode.

- IT Petroleum pitch
(carbonization of; graphite powder contg. carbonaceous coating for anode in **lithium** battery)
- IT Battery anodes
(graphite powder contg. carbonaceous coating for anode in **lithium** battery)
- IT Carbonaceous materials (technological products)
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(graphite powder contg. carbonaceous coating for anode in **lithium** battery)
- IT Secondary batteries
(**lithium**; graphite powder contg. carbonaceous coating for anode in **lithium** battery)
- IT 96-48-0, .gamma.-**Butyrolactone** 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solvent; graphite powder contg. carbonaceous coating for anode in **lithium** battery)
- IT 108-30-5, Succinic anhydride, uses 108-31-6, Maleic anhydride, uses 872-36-6, Vinylene carbonate 1469-73-4, Propylene sulfite 3741-38-6, Ethylene sulfite **4427-96-7**, Vinyl **ethylene carbonate** 13509-27-8, Methyl phenyl carbonate
RL: DEV (Device component use); USES (Uses)
(film-forming agent, in **electrolyte**; graphite powder contg. carbonaceous coating for anode in **lithium** battery)
- IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(graphite powder contg. carbonaceous coating for anode in **lithium** battery)

CL6 ANSWER 3 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:773813 CAPLUS

DOCUMENT NUMBER: 139:294627

TITLE: Nonaqueous type **electrolyte** secondary battery with **electrolyte** containing fluorosubstituted satd. straight-chain carboxylic acid ester

INVENTOR(S): Sasaki, Yukio; Takehara, Masahiro; Ue, Makoto

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003282138	A2	20031003	JP 2002-85572	20020326
PRIORITY APPLN. INFO.: JP 2002-85572 20020326				
AB A nonaq. solvent in an electrolyte of a Li secondary battery comprises 0.01-5% satd. straight-chain carboxylic acid ester in which at least some of H atoms are substituted with F. The battery demonstrates excellent charge-discharge efficiency and storage characteristic even under high-temp. conditions.				
IT Secondary batteries (lithium; nonaq. type electrolyte secondary battery with electrolyte contg. fluorosubstituted satd. straight-chain carboxylic acid ester)				
IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-29-2, .gamma.-Valerolactone 108-32-7, Propylene carbonate 453-18-9, Methyl fluoroacetate 462-26-0, 2-Fluoroethyl acetate 542-28-9, .delta.-Valerolactone 616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate 872-36-6, Vinylene carbonate 1120-71-4, Propane sultone 3741-38-6, Ethylene sulfite 4427-92-3, Phenyl ethylene carbonate 4427-96-7, Vinyl ethylene carbonate 4437-85-8, Butylene carbonate 206436-35-3, Methanol, fluoro, acetate				
RL: NUU (Other use, unclassified): USES (Uses) (electrolyte component; nonaq. type electrolyte secondary battery with electrolyte contg. fluorosubstituted satd. straight-chain carboxylic acid ester)				

L6 ANSWER 4 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:715901 CAPLUS
 DOCUMENT NUMBER: 139:248001
 TITLE: Nonaqueous **electrolyte** secondary battery with suppressed gas and heat generation in high-temperature environment
 INVENTOR(S): Takahashi, Kentaro
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003257481	A2	20030912	JP 2002-54759	20020228

PRIORITY APPLN. INFO.: JP 2002-54759 20020228

OTHER SOURCE(S): MARPAT 139:248001

AB In a nonaq. **electrolyte** secondary battery, a neg. electrode active mass contains .gtoreq.2% carbon material with d002 .gtoreq.0.340, a nonaq. **electrolyte** contains .gtoreq.2% of vinyl **ethylene carbonate** or a deriv. thereof, and a solvent contains .gtoreq.20% .gamma.-**butyrolactone**. Generation of gas and reaction heat is suppressed even under high-temp. environments.

IT Battery **electrolytes**
(contg. vinyl **ethylene carbonate**; nonaq. **electrolyte** secondary battery with suppressed gas and heat generation in high-temp. environment)

IT Secondary batteries
(lithium; nonaq. **electrolyte** secondary battery with suppressed gas and heat generation in high-temp. environment)

IT Coke
RL: DEV (Device component use); USES (Uses)
(neg. electrode active mass; nonaq. **electrolyte** secondary battery with suppressed gas and heat generation in high-temp. environment)

IT Solvents
(.gamma.-**butyrolactone**-contg.; nonaq. **electrolyte** secondary battery with suppressed gas and heat generation in high-temp. environment)

IT 96-48-0, .gamma.-**Butyrolactone**
RL: DEV (Device component use); USES (Uses)
(battery solvent; nonaq. **electrolyte** secondary battery with suppressed gas and heat generation in high-temp. environment)

IT 4427-96-7, Vinyl **ethylene carbonate**
RL: DEV (Device component use); USES (Uses)
(**electrolyte**; nonaq. **electrolyte** secondary battery with suppressed gas and heat generation in high-temp. environment)

IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(neg. electrode active mass; nonaq. **electrolyte** secondary battery with suppressed gas and heat generation in high-temp. environment)

L6 ANSWER 5 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:715898 CAPLUS

DOCUMENT NUMBER: 139:233020

TITLE: Nonaqueous **electrolyte** secondary battery having excellent charging-discharging cycle at low temperature and long service life at high temperature.

INVENTOR(S): Wada, Hiroshi

PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003257478	A2	20030912	JP 2002-53455	20020228
PRIORITY APPLN. INFO.:			JP 2002-53455	20020228
AB	The title nonaq. electrolyte secondary battery uses $\text{Li}_x\text{MnyMzO}_4$ ($1.05 < x < 1.2$, $1.8 < y < 1.95$, $0 < z < 0.15$, M = Al and/or Mg) as cathode active material and an electrolyte contg. cyclic carboxylic ester, vinylene carbonate and/or vinyl ethylene carbonate , LiBF_4 and optionally LiPF_6 .			
IT	Carboxylic acids, uses RL: TEM (Technical or engineered material use); USES (Uses) (esters, cyclic, electrolyte contg.; nonaq. electrolyte secondary battery having excellent charging-discharging cycle at low temp. and long service life at high temp.)			
IT	Secondary batteries (nonaq. electrolyte secondary battery having excellent charging-discharging cycle at low temp. and long service life at high temp.)			
IT	155472-68-7, Lithium manganese oxide ($\text{Li}_{1.1}\text{Mn}_{1.9}\text{O}_4$) 362666-83-9, Aluminum lithium manganese oxide ($\text{Al}_{0.1}\text{Li}_{1.1}\text{Mn}_{1.8}\text{O}_4$) RL: TEM (Technical or engineered material use); USES (Uses) (cathode active material; nonaq. electrolyte secondary battery having excellent charging-discharging cycle at low temp. and long service life at high temp.)			
IT	96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 872-36-6, Vinylene carbonate 4427-96-7, Vinyl ethylene carbonate 14283-07-9 21324-40-3, Lithium hexafluorophosphate (LiPF_6) RL: TEM (Technical or engineered material use); USES (Uses) (electrolyte contg.; nonaq. electrolyte secondary battery having excellent charging-discharging cycle at low temp. and long service life at high temp.)			

L6 ANSWER 6 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:628420 CAPLUS

DOCUMENT NUMBER: 139:166961

TITLE: Secondary nonaqueous-**electrolyte** battery with **electrolyte** solvent containing chain ester

INVENTOR(S): Murai, Tetsuya

PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003229168	A2	20030815	JP 2002-25969	20020201
US 2003170549	A1	20030911	US 2003-347735	20030122
CN 1435906	A	20030813	CN 2003-103136	20030130

PRIORITY APPLN. INFO.: JP 2002-25969 A 20020201

OTHER SOURCE(S): MARPAT 139:166961

AB The claimed battery is equipped with a nonaq.-**electrolyte** solvent contg. a chain carbonate ester R1OCOR2 (R1 = C4-12 hydrocarbyl; R2 = C1-12 hydrocarbyl) and .gtoreq.80 vol.% **ethylene carbonate**, propylene carbonate, and/or .gamma.-**butyrolactone**. The resulting nonaq. **electrolyte** provides high wettability to give a battery showing high charging-discharging performance and expansion prevention during high-temp. storage.

IT Secondary batteries
(lithium; secondary nonaq.-**electrolyte** battery with **electrolyte** solvent contg. chain ester)

IT Battery **electrolytes**
(secondary nonaq.-**electrolyte** battery with **electrolyte** solvent contg. chain ester)

IT 542-52-9, Di-n-butyl carbonate 1680-31-5, Dioctyl carbonate 4824-75-3
6290-55-7, Di n-decyl carbonate 6482-34-4, Diisopropyl carbonate
7523-15-1, Di n-hexyl carbonate 30714-78-4 35466-84-3 36560-81-3,
Dinonyl carbonate
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(secondary nonaq.-**electrolyte** battery with **electrolyte** solvent contg. chain ester)

IT 77-77-0, Divinyl sulfone 96-48-0, .gamma.-**Butyrolactone**
96-49-1, **Ethylene carbonate** 108-32-7, Propylene
carbonate 872-36-6, Vinylene carbonate 1120-71-4, Propane sultone
4427-96-7, Vinylethylene carbonate
RL: DEV (Device component use); USES (Uses)
(solvent; secondary nonaq.-**electrolyte** battery with **electrolyte** solvent contg. chain ester)

L6 ANSWER 7 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:568942 CAPLUS

DOCUMENT NUMBER: 139:119914

TITLE: Secondary nonaqueous-**electrolyte** battery
with anode containing coated graphite particle

INVENTOR(S): Tejima, Minoru; Aoki, Toshiyuki; Tabuchi, Toru

PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	JP 2003208896	A2	20030725	JP 2002-6174	20020115
PRIORITY APPLN. INFO.:				JP 2002-6174	20020115
AB	The claimed battery is equipped with an anode contg. graphite particles and an electrolyte contg. a cyclic carboxylic acid ester, where the graphite particles are coated with low-cryst. C. The battery provides high initial discharge capacity and charge-discharge cycle performance.				
IT	Secondary batteries (lithium; secondary nonaq. battery with anode contg. low-cryst. carbon-coated graphite particle)				
IT	Battery anodes (secondary nonaq. battery with anode contg. low-cryst. carbon-coated graphite particle)				
IT	7440-44-OP, Carbon, uses RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses) (chem.-vapor deposited or pitch-derived; secondary nonaq. battery with anode contg. low-cryst. carbon-coated graphite particle)				
IT	96-48-0, gamma.-Butyrolactone 96-49-1, Ethylene carbonate 542-52-9, Di-n-butyl carbonate 872-36-6, Vinylene carbonate 4427-96-7, Vinylethylene carbonate RL: DEV (Device component use); USES (Uses) (electrolyte solvent; secondary nonaq. battery with anode contg. low-cryst. carbon-coated graphite particle)				
IT	7782-42-5, Graphite, uses RL: DEV (Device component use); USES (Uses) (secondary nonaq. battery with anode contg. low-cryst. carbon-coated graphite particle)				

< L6 ANSWER 8 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:471074 CAPLUS
 DOCUMENT NUMBER: 139:39152
 TITLE: Secondary nonaqueous **electrolyte** battery
 INVENTOR(S): Kosuda, Atsuko; Maruyama, Satoshi
 PATENT ASSIGNEE(S): TDK Corporation, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003173818	A2	20030620	JP 2001-371526	20011205

PRIORITY APPLN. INFO.: JP 2001-371526 20011205

AB The battery has a cathode, an anode, and an **electrolyte** soln. filled in a package; where the cathode active mass is LiCoO₂ having 0.001-2 at.% of Co substituted by metals other than Li and Co, and the **electrolyte** soln. has a **.gamma.-butyrolactone** -cyclic carbonate solvent mixt. contg. ≥ 4 (but >0)% vinyl **ethylene carbonate**.

IT Secondary batteries
(**lithium**; secondary **lithium** batteries with vinyl **ethylene carbonate** contg. **electrolyte** solvent and niobium substituted **lithium** cobaltate cathodes)

IT Battery **electrolytes**
(**.gamma.-butyrolactone**-cyclic carbonate solvent mixts. contg. vinyl **ethylene carbonate** of secondary **lithium** battery **electrolyte** solns.)

IT 12190-79-3D, Cobalt **lithium** oxide (CoLiO₂), niobium substituted 253875-52-4, Cobalt **lithium** niobium oxide
RL: DEV (Device component use); USES (Uses)
(niobium substituted cobalt **lithium** oxide cathodes for secondary **lithium** batteries)

IT 7440-03-1, Niobium, uses
RL: MOA (Modifier or additive use); USES (Uses)
(niobium substituted cobalt **lithium** oxide cathodes for secondary **lithium** batteries)

IT 96-48-0, **.gamma.-Butyrolactone** 96-49-1, **Ethylene carbonate** 4427-96-7, Vinyl **ethylene carbonate** 14283-07-9, **Lithium** fluoroborate
RL: DEV (Device component use); USES (Uses)
(**.gamma.-butyrolactone**-cyclic carbonate solvent mixts. contg. vinyl **ethylene carbonate** of secondary **lithium** battery **electrolyte** solns.)

<L6 ANSWER 9 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:335472 CAPLUS

DOCUMENT NUMBER: 138:341110

TITLE: Nonaqueous **electrolyte** solution and secondary nonaqueous **electrolyte** battery

INVENTOR(S): Sekino, Masahiro; Sato, Asako; Momma, Jun; Oguchi, Masayuki

PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan

SOURCE: PCT Int. Appl., 80 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003036752	A1	20030501	WO 2002-JP11160	20021028

W: CN, KR, US

RW: DE, FR, GB

JP 2003203675 A2 20030718 JP 2002-313051 20021028

US 2003198871 A1 20031023 US 2003-355304 20030131

PRIORITY APPLN. INFO.: JP 2001-329950 A 20011026

WO 2002-JP11160 A1 20021028

AB The **electrolyte** soln. has an **electrolyte** dissolved in a nonaq. solvent mixt., where the solvent mixt. comprises **ethylene carbonate** (EC), propylene carbonate (PC), γ -**butyrolactone** (GBL), optional vinylene carbonate (VC) and a fifth component excluding EC PC GBL and VC, and satisfying $x = 15-50$, $y = 30-75$, $0 < z < 30$, $0 < w$, $1 \text{ to } 5$, and $0 < q$, $1 \text{ to } 5$ (x , y , z , w and q represent resp. proportions (vol. %) of EC, PC, GBL, VC and the fifth component relative to the total vol. of the solvent mixt.). The battery has an electrode group contg. the above **electrolyte** soln. in a battery case.

IT Battery **electrolytes**

Secondary batteries

(Li salt **electrolyte** solns. contg. mixts. of various nonaq. solvents with controlled vol. % for secondary batteries)

IT 96-48-0, γ -**Butyrolactone** 96-49-1, **Ethylene carbonate** 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 872-36-6, Vinylene carbonate 4427-92-3, Phenyl **ethylene carbonate** 4427-96-7, Vinyl **ethylene carbonate** 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 132843-44-8

RL: DEV (Device component use); USES (Uses)

(Li salt **electrolyte** solns. contg. mixts. of various nonaq. solvents with controlled vol. % for secondary batteries)

IT 7782-42-5, Graphite, uses

~~RL: DEV (Device component use); USES (Uses)~~

(anode; Li salt **electrolyte** solns. contg. mixts. of various nonaq. solvents with controlled vol. % for secondary batteries)

IT 12190-79-3D, Cobalt **lithium** oxide (CoLiO₂), Li deficient

RL: DEV (Device component use); USES (Uses)

(cathode; Li salt **electrolyte** solns. contg. mixts. of various nonaq. solvents with controlled vol. % for secondary batteries)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

6 ANSWER 10 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:173992 CAPLUS

DOCUMENT NUMBER: 138:224204

TITLE: Battery

INVENTOR(S): Adachi, Momoe; Fujita, Shigeru; Endo, Takuya; Iwakoshi, Yasunobu; Shibamoto, Goro

PATENT ASSIGNEE(S): Sony Corporation, Japan

SOURCE: PCT Int. Appl., 162 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003019713	A1	20030306	WO 2002-JP8498	20020823
W: CN, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				

PRIORITY APPLN. INFO.: JP 2001-254547 A 20010824

AB The battery has a cathode, contg. a Li composite oxide active mass having Li and/or Ni and O, an anode contg. a Li intercalating material and/or Li in its active mass, and an **electrolyte**-impregnated separator in between; where the battery has charging voltage ≥ 4.25 V, and a total amt. of Li carbonate and Li sulfate is 1.0 mass % of the cathode active mass. Preferably, the **electrolyte** has the concn. of a proton impurity ≤ 20 ppm and water ≤ 20 ppm.

IT Secondary batteries
 (lithium; secondary lithium batteries contg. **electrolytes**, Li or Li-intercalating anodes and Li composite oxide cathodes with controlled concn. of Li₂CO₃ and Li₂SO₄)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 12668-36-9
 RL: DEV (Device component use); USES (Uses)
 (anode; secondary lithium batteries contg. **electrolytes**, Li or Li-intercalating anodes and Li composite oxide cathodes with controlled concn. of Li₂CO₃ and Li₂SO₄)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 RL: DEV (Device component use); USES (Uses)
 (cathode; secondary lithium batteries contg. **electrolytes**, Li or Li-intercalating anodes and Li composite oxide cathodes with controlled concn. of Li₂CO₃ and Li₂SO₄)

IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 90076-65-6 132843-44-8
 RL: DEV (Device component use); USES (Uses)
 (**electrolyte**; secondary lithium batteries contg. **electrolytes**, Li or Li-intercalating anodes and Li composite oxide cathodes with controlled concn. of Li₂CO₃ and Li₂SO₄)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl

carbonate 872-36-6, Vinylene carbonate 4427-96-7, Vinyl
ethylene carbonate 12031-65-1, Lithium
nickel oxide (LiNiO₂) 113066-92-5, Cobalt lithium nickel oxide
(Co_{0.9}LiNi_{0.1}O₂) 118557-79-2, Cobalt iron lithium oxide
(Co_{0.9}Fe_{0.1}LiO₂) 128975-24-6, Lithium manganese nickel oxide
(LiMn_{0.5}Ni_{0.5}O₂) 185746-84-3, Aluminum lithium magnesium
nickel oxide (Al_{0.05}LiMg_{0.05}Ni_{0.9}O₂) 202916-35-6, Chromium cobalt
lithium nickel oxide (Cr_{0.05}Co_{0.2}LiNi_{0.75}O₂) 287718-97-2,
Aluminum lithium manganese nickel oxide (Al_{0.05}LiMn_{0.05}Ni_{0.9}O₂)
346417-97-8, Cobalt lithium manganese nickel oxide
(Co_{0.33}LiMn_{0.33}Ni_{0.33}O₂) 364589-12-8, Aluminum cobalt lithium
titanium oxide (Al_{0.05}Co_{0.9}LiTi_{0.05}O₂) 475637-37-7, Aluminum cobalt
lithium nickel oxide (Al_{0.05}Co_{0.8}LiNi_{0.15}O₂) 478814-69-6,
Aluminum cobalt lithium magnesium oxide (Al_{0.05}Co_{0.9}LiMg_{0.05}O₂)
500867-92-5, Cobalt lithium magnesium manganese oxide
(Co_{0.8}LiMg_{0.05}Mn_{0.15}O₂) 500867-93-6, Aluminum iron lithium
nickel oxide (Al_{0.15}Fe_{0.05}LiNi_{0.8}O₂) 500867-94-7, Aluminum cobalt
lithium nickel oxide (Al_{0.2}Co_{0.3}LiNi_{0.5}O₂) 500867-98-1, Cobalt
lithium magnesium nickel oxide (Co_{0.45}LiMg_{0.05}Ni_{0.5}O₂)
500867-99-2, Cobalt lithium nickel titanium oxide
(Co_{0.35}LiNi_{0.6}Ti_{0.05}O₂) 500868-00-8, Cobalt iron lithium
nickel oxide (Co_{0.25}Fe_{0.1}LiNi_{0.65}O₂) 500868-01-9 500868-02-0
500868-03-1 500868-04-2 500868-05-3 500868-09-7 500868-10-0
500868-11-1 500868-12-2

RL: DEV (Device component use); USES (Uses)

(secondary lithium batteries contg. electrolytes,

Li or Li-intercalating anodes and Li

composite oxide cathodes with controlled concn. of Li₂CO₃ and Li₂SO₄)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:40243 CAPLUS

DOCUMENT NUMBER: 138:76172

TITLE: Nonaqueous secondary battery

INVENTOR(S): Murai, Tetsuya; Mukai, Hiroshi

PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 18 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1276165	A1	20030115	EP 2002-15551	20020711
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2003031259	A2	20030131	JP 2001-211767	20010712

JP 2003151623	A2	20030523	JP 2001-348541	20011114
CN 1398013	A	20030219	CN 2002-140953	20020711
US 2003054259	A1	20030320	US 2002-192688	20020711
PRIORITY APPLN. INFO.:			JP 2001-211767	A 20010712
			JP 2001-348541	A 20011114

OTHER SOURCE(S): MARPAT 138:76172

AB A nonaq. secondary cell includes the following elements: a pos. electrode capable of absorbing and releasing **lithium**; a neg. electrode capable of absorbing and releasing **lithium**; and a nonaq. **electrolyte** including a nonaq. solvent and a **lithium** salt dissolved therein wherein the **electrolyte** contains a vinyl **ethylene carbonate** compd. represented by the general formula (I); wherein R1, R2, R3, R4, R5, and R6 represent each independently a hydrogen atom or an alkyl group having from 1 to 4 carbon atoms, and furthermore contains at least a compd. selected from the group consisting of vinylene carbonate, a cyclic sulfonic acid ester or a cyclic sulfuric acid ester, and an acid anhydride.

IT Anhydrides

RL: MOA (Modifier or additive use); USES (Uses)
(cyclic; nonaq. **electrolyte lithium** secondary battery)

IT Sulfonic acids, uses

RL: DEV (Device component use); USES (Uses)
(esters, cyclic; nonaq. **electrolyte lithium** secondary battery)

IT Secondary batteries

(**lithium**; nonaq. **electrolyte lithium** secondary battery)

IT Battery **electrolytes**

(nonaq. **electrolyte lithium** secondary battery)

IT Carbonaceous materials (technological products)

RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)

IT Lactones

RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)

IT 96-48-0, .gamma.-**Butyrolactone** 96-49-1, **Ethylene**

carbonate 105-58-8, Diethyl carbonate 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate

RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)

IT 85-42-7, Cyclohexanedicarboxylic anhydride 85-43-8, 4-CyclohexEne-1,2-dicarboxylic acid anhydride 108-30-5, Succinic anhydride, uses 108-31-6, Maleic anhydride, uses 108-55-4, Glutaric anhydride 616-02-4, Citraconic anhydride 826-62-0, 5-Norbornene-2,3-dicarboxylic anhydride 872-36-6, Vinylene carbonate 1120-71-4, 1,3-Propanesultone 1131-15-3, Phenylsuccinic anhydride 1633-83-6, 1,4-Butanesultone 2426-02-0, 3,4,5,6-TETRAHYDROPHthalic ANHYDRIDE 2959-96-8,

2-Phenylglutaric anhydride 3289-23-4 **4427-96-7**, Vinyl
ethylene carbonate 4480-83-5, Diglycolic anhydride
7664-93-9D, Sulfuric acid, ester, cyclic 478784-91-7, Ethylene glycol
sulfate

RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte** lithium secondary battery)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 12 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:946650 CAPLUS

DOCUMENT NUMBER: 138:15279

TITLE: **Electrolyte** for lithium ion
battery

INVENTOR(S): Coowar, Fazlil; Macklin, William James

PATENT ASSIGNEE(S): Accentus PLC, UK

SOURCE: PCT Int. Appl., 19 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002099919	A1	20021212	WO 2002-GB2366	20020521

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: GB 2001-13544 A 20010605

AB A lithium ion cell comprising an anode layer and a cathode layer
each comprising resp. lithium ion insertion materials, sepd. by
a separator, in which the **electrolyte** comprises .gamma.-
butyrolactone in the range 10-80% by vol., **ethylene**
carbonate in the range 1-30% by vol., and at least one of either
vinyl **ethylene carbonate** in the range 1-8% by vol. or
methoxyethyl Me carbonate in the range 10-80% by vol. Such a cell has
good elec. properties, and is comparatively safe if overcharged because
the **electrolyte** components have high b.p. and high flash points.

IT Battery **electrolytes**
(**electrolyte** for lithium ion battery)

IT Secondary batteries
(lithium; **electrolyte** for lithium ion)

battery)
 IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene
 carbonate 4427-96-7, Vinyl ethylene
 carbonate 35466-86-5, 2-Methoxyethyl methyl carbonate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte for lithium ion battery)
 IT 1609-47-8, Diethyl dicarbonate 4525-33-1, Dimethyl dicarbonate
 21240-34-6, 1,2-Diphenyl vinylene carbonate 24424-99-5, Di-tert-butyl
 dicarbonate 50893-36-2, .alpha.-Chlorodiethyl carbonate 167951-80-6,
 3,3,3-Trifluoropropylene carbonate
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte for lithium ion battery)
 REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:925555 CAPLUS
 DOCUMENT NUMBER: 138:15257
 TITLE: Secondary nonaqueous electrolyte battery
 INVENTOR(S): Kotado, Minoru; Fujii, Takashi; Kinoshita, Shinichi
 PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002352852	A2	20021206	JP 2001-153396	20010523
PRIORITY APPLN. INFO.: JP 2001-153396			20010523	

OTHER SOURCE(S): MARPAT 138:15257
 AB The battery has a Li-intercalating anode, a cathode, and an
 electrolyte contg. a Li salt dissolved in a nonaq.
 solvent mixt.; where the solvent mixt. contains a vinylene carbonate
 deriv. I (R1-2 = H, C1-4 alkyl) and/or a vinyl ethylene
 carbonate deriv. II (R3-5 = H, C1-4; R6-8 = H, C1-4 alkyl or C2-7
 alkenyl), and an acid anhydride.
 IT Battery electrolytes
 (compn. of Li salt electrolyte solns. contg.
 carbonate compd. mixts. and acid anhydrides for secondary
 lithium batteries)
 IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene
 carbonate 108-30-5, Succinic anhydride, uses 108-32-7,
 Propylene carbonate 623-53-0, Ethyl methyl carbonate 4427-96-7
 . Vinyl ethylene carbonate 14283-07-9,
 Lithium tetrafluoroborate 21324-40-3, Lithium
 hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)

(compn. of Li salt **electrolyte** solns. contg.
carbonate ester mixts. and acid anhydrides for secondary
lithium batteries)

L6 ANSWER 14 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:925554 CAPLUS
DOCUMENT NUMBER: 138:15256
TITLE: Secondary nonaqueous **electrolyte** battery
INVENTOR(S): Kotado, Minoru; Fujii, Takashi; Kinoshita, Shinichi
PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002352851	A2	20021206	JP 2001-153395	20010523
PRIORITY APPLN. INFO.:			JP 2001-153395	20010523
OTHER SOURCE(S):	MARPAT	138:15256		

AB The battery has a Li-intercalating anode, a cathode, and an **electrolyte** contg. a Li salt dissolved in a nonaq. solvent mixt.; where the solvent mixt. contains a vinylene carbonate deriv., I (R1-2 = H, C1-4 alkyl) and/or a vinyl **ethylene carbonate** deriv. II (R3-5 = H, C1-4; R6-8 = H, C1-4 alkyl or C2-7 alkenyl), and a Ph group contg. cyclic carbonate deriv. selected from III and IV [Ph1-2 = (alkyl)phenyl; R9-10 = H, C1-4 alkyl, (alkyl)phenyl].

IT Battery **electrolytes**
(compn. of carbonate ester mixts. for **lithium** salt
electrolytes in secondary **lithium** batteries)

IT 96-48-0, **gamma-Butyrolactone** 96-49-1, **Ethylene carbonate** 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate 872-36-6, Vinylene carbonate 4427-92-3, Phenyl **ethylene carbonate** 4427-96-7, Vinyl **ethylene carbonate** 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(compn. of carbonate ester mixts. for **lithium** salt
electrolytes in secondary **lithium** batteries)

L6 ANSWER 15 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:906788 CAPLUS
DOCUMENT NUMBER: 137:387138
TITLE: Secondary nonaqueous **electrolyte** battery
INVENTOR(S): Kotato, Minoru; Suzuki, Hitoshi; Yamamoto, Takahiro; Yajima, Akira
PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan; A & T Battery Corporation

SOURCE: PCT Int. Appl.. 27 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002095859	A1	20021128	WO 2002-JP4944	20020522
W: AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EC, EE, GD, GE, HR, HU, ID, IL, IN, IS, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, OM, PH, PL, RO, SG, SI, SK, TN, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2002343430	A2	20021129	JP 2001-152234	20010522
PRIORITY APPLN. INFO.:		JP 2001-152234 A 20010522		
OTHER SOURCE(S):		MARPAT 137:387138		
AB The battery has a nonaq. Li salt electrolyte soln. between a cathode and a Li intercalating anode, packaged with a .ltoreq.0.5 .dwnarw.mm thick packaging material, where the nonaq. electrolyte solvent contains .gtoreq.50 vol.% .gamma.- butyrolactone , .gtoreq.10 vol.% ethylene carbonate , 0.01-5 wt.% vinylene carbonate deriv. I (R1 and R2 = H or C1-4 alkyl groups), and 0.01-5 wt.% vinylethylene carbonate II (R3-5 = H, C1-4 alkyl, or C2-7 alkenyl groups); with the total amt. of I and II being 0.02-6%.				
IT Battery electrolytes (electrolyte solvent mixts. contg. derivs. of vinylene carbonate and vinylethylene carbonate for secondary lithium batteries)				
IT Packaging materials (laminated packaging sheets with controlled thickness for secondary lithium batteries)				
IT Polyamides, uses RL: DEV (Device component use); USES (Uses) (laminated packaging sheets with controlled thickness for secondary lithium batteries)				
IT 96-49-1, Ethylene carbonate RL: DEV (Device component use); USES (Uses) (comps. of nonaq. electrolyte solvent mixts. for secondary lithium batteries)				
IT 96-48-0, .gamma.- Butyrolactone 872-36-6, Vinylene carbonate 4427-96-7 , Vinylethylene carbonate 14283-07-9, Lithium fluoroborate RL: DEV (Device component use); USES (Uses) (electrolyte solvent mixts. contg. derivs. of vinylene carbonate and vinylethylene carbonate for secondary lithium				

batteries)
IT 7429-90-5, Aluminum, uses 9003-07-0, Polypropylene
RL: DEV (Device component use); USES (Uses)
(laminated packaging sheets with controlled thickness for secondary
lithium batteries)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 16 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:848321 CAPLUS

DOCUMENT NUMBER: 137:355411

TITLE: Secondary nonaqueous **electrolyte** battery

INVENTOR(S): Kotado, Minoru; Sato, Shuji; Fujii, Takashi; Suzuki,
Hitoshi

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002324580	A2	20021108	JP 2002-38703	20020215
PRIORITY APPLN. INFO.:			JP 2001-48065	A 20010223
OTHER SOURCE(S):		MARPAT 137:355411		

AB The battery is a secondary Li battery using an anode active
mass, contg. 80-99% of a carbonaceous core material having d002
0.335-0.338 nm carbonaceous and 1-20% of a carbonaceous material having a
larger d002 adhered on the core material, and an **electrolyte**
soln. contg. vinylene carbonate deriv. I (R1 and R2 = H or C1-4 alkyl
groups) and/or vinylethylene carbonate II (R3-5 = H or C1-4kyl group, R6-8
= H, C1-4 alkyl, or C2-7 alkenyl groups).

IT Battery anodes
(anodes from carbonaceous material contg. core and surface layer of
different interplanar spacings for secondary **lithium**
batteries)

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(anodes from carbonaceous material contg. core and surface layer of
different interplanar spacings for secondary **lithium**
batteries)

IT Battery **electrolytes**
(**electrolyte** solns. contg. vinylene carbonate derivs. and
vinylethylene carbonate derivs. for secondary **lithium**
batteries)

IT Secondary batteries
(**lithium**; secondary **lithium** batteries with
electrolyte solns. contg. vinylene carbonate derivs. and

vinylethylene carbonate derivs. and carbonaceous anodes)
 IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene
 carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl
 carbonate 872-36-6, Vinylene carbonate 4427-96-7,
 Vinylethylene carbonate 14283-07-9, Lithium fluoroborate
 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. contg. vinylene carbonate derivs. and
 vinylethylene carbonate derivs. for secondary lithium
 batteries)

L6 ANSWER 17 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:539996 CAPLUS
 DOCUMENT NUMBER: 137:111684
 TITLE: Nonaqueous electrolytes and lithium
 secondary battery employing electrolytes
 thereof
 INVENTOR(S): Yasukawa, Eiki; Shima, Kunihisa; Kominato, Asao;
 Ishigaki, Ken-Ichi; Wang, Xianming; Fujii, Takashi;
 Kotato, Minoru; Shigematsu, Yasuyuki; Fuse, Tooru;
 Satou, Hideharu
 PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan
 SOURCE: PCT Int. Appl., 67 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002056408	A1	20020718	WO 2001-JP11630	20011228
W: AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EC, EE, GD, GE, HR, HU, ID, IL, IN, IS, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, OM, PH, PL, RO, SG, SI, SK, TN, TT, UA, US, UZ, VN, YU, ZA, ZM, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2002203596	A2	20020719	JP 2001-80	20010104
JP 2002203597	A2	20020719	JP 2001-81	20010104
JP 2003173819	A2	20030620	JP 2001-372550	20011206
JP 2003187865	A2	20030704	JP 2001-388034	20011220
JP 2003187866	A2	20030704	JP 2001-388035	20011220
EP 1357628	A1	20031029	EP 2001-995034	20011228
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003234127	A2	20030822	JP 2002-331717	20021115
PRIORITY APPLN. INFO.:			JP 2001-80	A 20010104
			JP 2001-81	A 20010104

JP 2001-372549 A 20011206
JP 2001-372550 A 20011206
JP 2001-388034 A 20011220
JP 2001-388035 A 20011220
WO 2001-JP11630 W 20011228

OTHER SOURCE(S): MARPAT 137:111684

AB Nonaq. electrolytic liqs. for **lithium** secondary batteries which have flame retardancy (self-extinguishing characteristics) or incombustibility (no flash point), have a high cond. and are electrochem. stable. One of the nonaq. electrolytic liqs. comprises a nonaq. solvent comprising as an essential ingredient at least one phosphate (a) selected among chain phosphoric esters (a1) and cyclic phosphoric esters (a2). The nonaq. solvent may further contain a cyclic carboxylic ester (b1) and a cyclic carbonic ester (b2). Another nonaq. electrolytic liq. comprises the nonaq. solvent and incorporated therein at least either a vinylene carbonate compd. (c1) or a vinylethylene carbonate compd. (c2) and one or more compds. selected from the group consisting of cyclic amide compds. (d1), cyclic carbamate compds. (d2), and cyclic hetero-compds. (d3).

IT Phosphates, uses

RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(esters, for solvents for **electrolytes**; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

IT Fireproofing agents

(flame retardation; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

IT Lactams

RL: MOA (Modifier or additive use); USES (Uses)
(for cond. **electrolyte** solvent; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

IT Electric conductivity

(high in, in **electrolyte**; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

IT Secondary batteries

(**lithium**, nonaq. **electrolyte** for; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

IT **Electrolytes**

(nonaq., solvents for; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

IT Electrochemistry

(stability in; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

IT 872-36-6, Vinylene carbonate 4427-96-7, Vinylethylene carbonate

RL: MOA (Modifier or additive use); USES (Uses)
(additive, in cond. **electrolyte** solvent; nonaq. **electrolytes** and **lithium** secondary battery employing

- electrolytes thereof)**
- IT 7440-02-0, Nickel, uses 7440-50-8, Copper, uses 12597-68-1, Stainless steel, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(electrodes; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)
- IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(secondary batteries; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)
- IT 21324-40-3
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(solute in **electrolyte** soln.; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)
- IT 96-48-0, gamma.-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-29-2, gamma.-Valerolactone 502-44-3, epsilon.-Caprolactone 512-56-1, Trimethyl phosphate 823-31-4 867-17-4, Diethyl methyl phosphate 2196-04-5, Ethylene methyl phosphate 10463-05-5, Dimethyl ethyl phosphate 10463-06-6 59259-32-4, Dimethyl propyl phosphate
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(solvent, for **electrolyte**; nonaq. **electrolytes** and **lithium** secondary battery employing **electrolytes** thereof)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 18 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:505274 CAPLUS

DOCUMENT NUMBER: 137:81358

TITLE: **Ethylene carbonate-gamma.-butyrolactone-based nonaqueous electrolytes** for secondary batteries

INVENTOR(S): Sekino, Masahiro; Satoh, Asako; Fujiwara, Masashi; Hasebe, Hiroyuki

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 25 pp., Cont.-in-part of U. S. Ser. No.961,138.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002086216	A1	20020704	US 2001-26816	20011227
US 2002064712	A1	20020530	US 2001-961138	20010924
JP 2002184462	A2	20020628	JP 2001-338586	20010928

PRIORITY APPLN. INFO.: JP 2000-296074 A 20000928
US 2001-961138 A2 20010924
JP 2001-338586 A 20010928

AB A nonaq. **electrolyte**, preferably in the form of a gel or liq., for a secondary battery consists of 20-50 vol.% **ethylene carbonate** and 40-80 vol.% **gamma.-butyrolactone**, and includes a third solvent selected from ethylene sulfite, phenylethylene carbonate, 2-methylfuran, furan, thiophene, catechol carbonate, and vinylethylene carbonate. Optionally, the battery **electrolyte** can also contain a **lithium** salt as a solute, selected from LiClO₄, LiPF₆, LiBF₄, LiAsF₆, LiCF₃SO₃, LiN(CF₃SO₂)₂, and LiN(C₂F₅SO₂)₂. Under charge-discharge cycle tests at 45.degree., the capacity retention rate at the 100th charge-discharge cycle is .gtoreq.85% of the discharge capacity in the first charge-discharge cycle.

IT Battery **electrolytes**

(nonaq. for secondary batteries; **ethylene carbonate** -**gamma.-butyrolactone**-based nonaq. **electrolytes** for secondary batteries)

IT 96-48-0, **gamma.-Butyrolactone** 96-49-1, **Ethylene carbonate** 110-00-9, Furan 110-02-1, Thiophene 534-22-5, 2-Methylfuran 2171-74-6, 1,3-Benzodioxol-2-one 3741-38-6, Ethylene sulfite 4427-92-3, Phenylethylene carbonate 4427-96-7, Vinylethylene carbonate

RL: TEM (Technical or engineered material use); USES (Uses)
(**electrolytes** contg.; **ethylene carbonate** -**gamma.-butyrolactone**-based nonaq. **electrolytes** for secondary batteries)

IT 7791-03-9, **Lithium** perchlorate 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9, **Lithium** trifluoromethanesulfonate 90076-65-6, Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, **lithium** salt 132843-44-8, Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(pentafluoroethyl)sulfonyl]-, **lithium** salt

RL: TEM (Technical or engineered material use); USES (Uses)
(solute, nonaq. **electrolyte** contg.; **ethylene carbonate**-**gamma.-butyrolactone**-based nonaq. **electrolytes** for secondary batteries)

CL6 ANSWER 19 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:504005 CAPLUS

DOCUMENT NUMBER: 137:65739

TITLE: Flame-retardant nonaqueous **electrolyte** solution and secondary **lithium** battery using it

INVENTOR(S): Yasukawa, Hideki; Ishigaki, Kenichi; Kotado, Minoru; Fujii, Takashi

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002190316	A2	20020705	JP 2000-390188	20001222
PRIORITY APPLN. INFO.:			JP 2000-390188	20001222

OTHER SOURCE(S): MARPAT 137:65739

AB The **electrolyte** soln. comprises Li salts dissolved in an nonaq. solvent. The nonaq. solvent contains (a) cyclic carboxylic acid ester, (b) carbonic acid ester, and (c) phosphoric acid ester, and vinylene carbonate I (R1-2 = H, C1-4 alkyl) and/or vinylethylene carbonate II (R3-8 = H, C1-4 alkyl) are added to the solvent. The Li battery using the **electrolyte** soln. is also claimed. The **electrolyte** soln. shows excellent self fire-extinguishing performance and has high elec. cond. and electrochem. stability.

IT Battery **electrolytes**

Fire-resistant materials

(flame-retardant nonaq. **electrolyte** soln. contg. carbonate compd. as additive for Li battery)

IT 872-36-6, Vinylene carbonate **4427-96-7**

RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(flame-retardant nonaq. **electrolyte** soln. contg. carbonate compd. as additive for Li battery)

IT 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3,

Lithium hexafluorophosphate

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(flame-retardant nonaq. **electrolyte** soln. contg. carbonate compd. as additive for Li battery)

IT 96-48-0, .gamma.-**Butyrolactone** 96-49-1, **Ethylene**

carbonate 104-50-7, .gamma.-Octanolactone 105-58-8, Diethyl carbonate 108-29-2, .gamma.-Valerolactone 108-32-7, Propylene carbonate 502-44-3, .epsilon.-Caprolactone 512-56-1 542-28-9,

.delta.-Valerolactone 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Di-n-propyl carbonate 695-06-7,

.gamma.-Caprolactone 823-31-4, Ethyl ethylene phosphate 867-17-4,

Diethyl methyl phosphate 3068-88-0, .beta.-**Butyrolactone**

4437-85-8, Butylene carbonate 6482-34-4, Diisopropyl carbonate

10463-05-5, Dimethyl ethyl phosphate 10463-06-6, Butyl dimethyl

phosphate 35363-39-4, Ethyl isopropyl carbonate 35363-40-7

51729-83-0, Methyl isopropyl carbonate 56525-42-9 59259-32-4, Dimethyl

propyl phosphate 119812-13-4

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(nonaq. solvent; flame-retardant nonaq. **electrolyte** soln.)

contg. carbonate compd. as additive for Li battery)

L6 ANSWER 20 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:253130 CAPLUS

DOCUMENT NUMBER: 136:281940

TITLE: Nonaqueous electrolyte secondary battery

INVENTOR(S): Sekino, Masahiro; Satoh, Asako; Fujiwara, Masashi;
Hasebe, Hiroyuki

PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan

SOURCE: Eur. Pat. Appl., 33 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1193788	A2	20020403	EP 2001-308138	20010925
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
CN 1347166	A	20020501	CN 2001-132663	20010907
PRIORITY APPLN. INFO.:		JP 2000-296074	A	20000928

AB Disclosed is a nonaq. **electrolyte** secondary battery, characterized by comprising a nonaq. **electrolyte** contg. **ethylene carbonate** and **gamma.-butyrolactone**, wherein, when a charge-discharge cycle test satisfying conditions (A) to (D) given below is performed under an environment of 45.degree., the capacity retention rate at 100-th charge-discharge cycle is at least 85% based on the discharge capacity in the first charge-discharge cycle, (A) for the charging, the const. current-const. voltage charging to 4.2 V is performed for 3 h under a current of 1 C, (B) the discharging is performed to 3 V under a current of 1 C, (C) after the charging, the secondary battery is left to stand for 10 min, followed by performing the discharging, and (D) after the discharging, the secondary battery is left to stand for 10 min, followed by performing the charging.

IT Carbon fibers, uses
RL: DEV (Device component use); USES (Uses)
(mesophase pitch-based; nonaq. **electrolyte** secondary battery)

IT Battery **electrolytes**
Secondary batteries
(nonaq. **electrolyte** secondary battery)

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte** secondary battery)

IT Carbon black, uses
Fluoropolymers, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte** secondary battery)

IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 110-00-9, Furan 110-02-1, Thiophene 534-22-5, 2-Methylfuran 2171-74-6, Pyrocatechol carbonate 3741-38-6, Ethylene sulfite 4427-92-3, Phenylethylene carbonate 4427-96-7, Vinylethylene carbonate 7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 111706-40-2, Cobalt lithium oxide CoLiO-102 132843-44-8
RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte** secondary battery)

IT 7782-42-5, Graphite, uses 24937-79-9, PvdF
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte** secondary battery)

L6 ANSWER 21 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:104914 CAPLUS
DOCUMENT NUMBER: 136:153901
TITLE: Laminar secondary nonaqueous **electrolyte** battery
INVENTOR(S): Yajima, Toru; Yamamoto, Takahiro
PATENT ASSIGNEE(S): A. T. Battery Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002042865	A2	20020208	JP 2000-231562	20000731
PRIORITY APPLN. INFO.:			JP 2000-231562	20000731

AB The battery has a stack, contg. a separator between a Li intercalating cathode and a Li intercalating carbonaceous anode, in a package of a laminated film contg. a gas barrier layer in the middle; where the **electrolyte** soln. has LiBF₄ dissolved in a .gamma.-butyrolactone or .gamma.-butyrolactone-cyclic carbonate mixed nonaq. solvent, which contains vinylene carbonate, its deriv., and/or vinylethylene carbonate.

IT Packaging materials
(laminated packaging films contg. gas barrier intermediate layers for secondary **lithium** batteries)

IT Polyimides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(laminated packaging films contg. gas barrier intermediate layers for secondary **lithium** batteries)

IT Battery **electrolytes**

- (solvent mixts. contg. vinylene carbonate and vinylethylene carbonate for **electrolytes** in secondary **lithium** batteries)
- IT 1344-28-1, Alumina, uses 9002-88-4, Polyethylene
 RL: MOA (Modifier or additive use); USES (Uses)
 (laminated packaging films contg. gas barrier intermediate layers for secondary **lithium** batteries)
- IT 96-48-0, .gamma.-Butyrolactone 96-49-1, **Ethylene carbonate** 14283-07-9, **Lithium** fluoroborate
 RL: DEV (Device component use); USES (Uses)
 (solvent mixts. contg. vinylene carbonate and vinylethylene carbonate for **electrolytes** in secondary **lithium** batteries)
- IT 872-36-6, Vinylene carbonate **4427-96-7**, Vinylethylene carbonate
 RL: MOA (Modifier or additive use); USES (Uses)
 (solvent mixts. contg. vinylene carbonate and vinylethylene carbonate for **electrolytes** in secondary **lithium** batteries)

L6 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:66770 CAPLUS
 DOCUMENT NUMBER: 136:121064
 TITLE: Nonaqueous **electrolyte** **lithium** secondary battery
 INVENTOR(S): Iwamoto, Kazuyu; Oura, Takafumi; Hatazaki, Makino; Yoshizawa, Hiroshi; Sonoda, Kumiko; Nakanishi, Shinji
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 31 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1174940	A1	20020123	EP 2001-117048	20010712
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002033119	A2	20020131	JP 2000-215518	20000717
JP 2002033120	A2	20020131	JP 2000-215519	20000717
JP 2002033124	A2	20020131	JP 2000-215520	20000717
US 2002039677	A1	20020404	US 2001-901130	20010710
CN 1333580	A	20020130	CN 2001-123135	20010717
PRIORITY APPLN. INFO.:			JP 2000-215518	A 20000717
			JP 2000-215519	A 20000717
			JP 2000-215520	A 20000717
AB	The invention relates to a nonaq. electrochem. app. in which the difference (.gamma.l-.gamma.se) between the surface tension .gamma.l of nonaq. electrolyte and the surface free energy .gamma.se of electrode is not more than 10 dynes/cm. The nonaq. electrolyte contains a F-contg. surface active agent.			
IT	Carboxylic acids, uses			

- RL: MOA (Modifier or additive use); USES (Uses)
(C2-20, fluoroalkyl; nonaq. **electrolyte lithium**
secondary battery)
- IT Sulfonic acids, uses
RL: MOA (Modifier or additive use); USES (Uses)
(alkanesulfonic, sodium salts, fluoro-; nonaq. **electrolyte**
lithium secondary battery)
- IT Anhydrides
Ethers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(cyclic; nonaq. **electrolyte lithium** secondary
battery)
- IT Carboxylic acids, uses
RL: MOA (Modifier or additive use); USES (Uses)
(esters, cyclic; nonaq. **electrolyte lithium**
secondary battery)
- IT Secondary batteries
(**lithium**; nonaq. **electrolyte lithium**
secondary battery)
- IT Battery electrodes
Battery **electrolytes**
Surface free energy
Surface tension
Surfactants
(nonaq. **electrolyte lithium** secondary battery)
- IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)
- IT Cyclic compounds
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)
-
- IT Lactones
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)
- IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)
- IT 463-79-6D, Carbonic acid, esters 1343-98-2D, Silicic acid, esters
7664-38-2D, Phosphoric acid, esters 7664-93-9D, Sulfuric acid, esters
7697-37-2D, Nitric acid, esters 7782-77-6D, Nitrous acid, esters
7782-99-2D, Sulfurous acid, esters 10043-35-3D, Boric acid, esters
13598-36-2D, Phosphorous acid, esters
RL: MOA (Modifier or additive use); USES (Uses)
(cyclic; nonaq. **electrolyte lithium** secondary
battery)
- IT 79-20-9, Methyl acetate 85-44-9, Phthalic anhydride 96-48-0, .gamma.-
Butyrolactone 96-49-1, **Ethylene carbonate**
105-54-4, Ethyl butyrate 105-58-8, Diethyl carbonate 108-29-2,
.gamma.-Valerolactone 108-30-5, Succinic anhydride, uses 108-32-7,
Propylene carbonate 109-60-4, n-Propyl acetate 123-86-4, Butyl acetate

- 140-11-4, Benzyl acetate 141-78-6, Ethyl acetate, uses 517-23-7,
.alpha.-Acetyl-.gamma.-**butyrolactone** 540-42-1, Isobutyl
propionate 554-12-1, Methyl propionate 616-02-4, Citraconic anhydride
616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate
1679-47-6, .alpha.-Methyl-.gamma.-**butyrolactone** 2170-03-8,
Itaconic anhydride 2453-03-4, 1,3-Dioxan-2-one 7782-42-5, Graphite,
uses 9002-88-4, Polyethylene 14283-07-9, Lithium
tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate
52627-24-4, Cobalt lithium oxide 52876-41-2, Trimethylene
borate 90076-65-6 132843-44-8 201416-30-0, 4,5-Diphenyl-1,3,2-
dioxathiole-2,2-dioxide 389604-01-7
RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)
IT 77-79-2, Sulfolene 102-09-0, Diphenyl carbonate 126-33-0, Sulfolane
463-79-6D, Carbonic acid, ester 822-38-8, Ethylene trithiocarbonate
872-36-6, Vinylene carbonate 872-93-5, 3-MethylSulfolane 930-35-8,
Vinylene trithiocarbonate 1120-71-4, Propanesultone 1600-44-8
1633-83-6, 1,4-Butanesultone 2171-74-6, 1,3-Benzodioxol-2-one
2965-52-8 3741-38-6, Ethylene sulfite 3967-54-2, Chloroethylene
carbonate 4236-15-1 4427-92-3, Phenylethylene carbonate
4427-96-7, Vinylethylene carbonate 6255-58-9 7440-44-0,
Carbon, uses 7704-34-9D, Sulfur, ester 16761-08-3 21240-34-6
37228-47-0, Ethylene phosphite 40630-61-3 52550-45-5 75032-95-0,
Disodium N-perfluorooctanesulfonylglutamate 75046-16-1 122036-85-5
324547-56-0 366787-88-4
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)
IT 24937-79-9, PvdF
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. **electrolyte lithium** secondary battery)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L6 ANSWER 23 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:47936 CAPLUS
DOCUMENT NUMBER: 136:105137
TITLE: Nonaqueous **electrolyte** solution and
secondary nonaqueous **electrolyte** battery
INVENTOR(S): Sekino, Masahiro; Fujiwara, Masashi; Sato, Asako;
Kadoma, Shun; Koguchi, Masayuki; Kato, Makoto; Hasebe,
Hiroyuki
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002015771	A2	20020118	JP 2001-54937	20010228
CN 1373529	A	20021009	CN 2001-135832	20011025
US 2002164531	A1	20021107	US 2001-985369	20011102
PRIORITY APPLN. INFO.:			JP 2000-131615	A 20000428
			JP 2001-54937	A 20010228

AB The **electrolyte** soln. has a Li salt dissolved in a nonaq. solvent, where the solvent contains **ethylene carbonate** 15-50, propylene carbonate 2-35, .gamma.-**butyrolactone** 30-85., and a 4th component 0-5 vol.%. The 4th component is selected from vinylene carbonate, vinyl **ethylene carbonate**, **ethylene** sulfite, , Ph **ethylene carbonate**, 12-crown-4, and tetraethylene glycol di-Me ether; and may contain a 5th component when the 4th component is vinylene carbonate. The battery has the **electrolyte** soln. retained in an electrode stack in a .ltoreq.0.3 mm thick package.

IT Battery **electrolytes**

(compsn. of carbonate ester based **electrolyte** solvent mixts. for secondary **lithium** batteries)

IT 96-48-0, .gamma.-**Butyrolactone** 96-49-1, **Ethylene carbonate** 108-32-7, Propylene carbonate 14283-07-9, **Lithium** fluoroborate

RL: DEV (Device component use); USES (Uses)

(compsn. of carbonate ester based **electrolyte** solvent mixts. for secondary **lithium** batteries)

IT 143-24-8, Tetraethylene glycol dimethyl ether 294-93-9, 12-Crown-4 872-36-6, Vinylene carbonate 3741-38-6, Ethylene sulfite 4427-92-3, Phenylethylene carbonate **4427-96-7**, Vinyl **ethylene carbonate**

RL: MOA (Modifier or additive use); USES (Uses)

(compsn. of carbonate ester based **electrolyte** solvent mixts. for secondary **lithium** batteries)

46 ANSWER 24 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:911605 CAPLUS

DOCUMENT NUMBER: 134:74022

TITLE: Secondary nonaqueous **electrolyte** batteries

INVENTOR(S): Kotato, Minoru; Fujii, Takashi; Shima, Noriko; Suzuki, Hitoshi

PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan

SOURCE: PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000079632	A1	20001228	WO 2000-JP3910	20000615

W: CN, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE

JP 2001006729 A2 20010112 JP 1999-172405 19990618

JP 2001126761 A2 20010511 JP 1999-304847 19991027

EP 1205996 A1 20020515 EP 2000-937252 20000615

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, FI, CY

PRIORITY APPLN. INFO.: JP 1999-172405 A 19990618

JP 1999-304847 A 19991027

WO 2000-JP3910 W 20000615

OTHER SOURCE(S): MARPAT 134:74022

AB The batteries have a cathode, an anode, and an **electrolyte** soln.
contg. a Li salt dissolved in a nonaq. solvent; where the
solvent contains 0.01-20% vinylethylene carbonate I, where R1-6 are H or
C1-4 alkyl groups.

IT Battery anodes
(characteristics of graphite for anodes in secondary **lithium**
batteries contg. vinylethylene carbonate ii **electrolyte**
solns.)

IT Battery **electrolytes**
(solvent mixs. contg. vinylethylene carbonate for **lithium**
salt **electrolytes** in secondary **lithium** batteries)

IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(artificial; characteristics of graphite for anodes in secondary
lithium batteries contg. vinylethylene carbonate ii
electrolyte solns.)

IT 96-48-0, .gamma.-**Butyrolactone** 96-49-1, **Ethylene**
carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene
carbonate

RL: DEV (Device component use); USES (Uses)
(solvent mixs. contg. vinylethylene carbonate for **lithium**
salt **electrolytes** in secondary **lithium** batteries)

IT **4427-96-7**, Vinylethylene carbonate
RL: MOA (Modifier or additive use); USES (Uses)
(solvent mixs. contg. vinylethylene carbonate for **lithium**
salt **electrolytes** in secondary **lithium** batteries)

IT 21324-40-3, **Lithium hexafluorophosphate**
RL: DEV (Device component use); USES (Uses)
(solvent mixts. contg. vinylethylene carbonate for **lithium**
salt **electrolytes** in secondary **lithium** batteries)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT